(12) UK Patent Application (19) GB (11) 2 302 531 (13) A

(43) Date of A Publication 22.01.1997

(21) Application No 9512595.1

(22) Date of Filing 21.06.1995

(51) INT CL^6
B65D 25/22

(52) UK CL (Edition O)
B8P PM

(56) Documents Cited
US 4349102 A

(58) Field of Search
UK CL (Edition O) B8C CWS3 , B8P PK10 PK5 PL1 PL5 PM
INT CL^6 B65D 25/22 43/02 43/08 43/10 73/00 75/32 75/56
ONLINE:WPI

(71) Applicant(s)
Dolphin Packaging Materials Ltd

(Incorporated in the United Kingdom)

Fleets Lane, Poole, Dorset, BH15 3BY, United Kingdom

(72) Inventor(s)
Anthony Shawyer

(74) Agent and/or Address for Service
Barker, Brettell & Boutland
Prudential Buildings, 97-101 Above Bar Street, SOUTHAMPTON, SO14 7JW, United Kingdom

(54) Containers with lids and hanging tabs

(57) A container assembly 1 comprises a thermo-formed transparent plastics container body shell 2 and a thermo-formed transparent lid shell 3. The body shell 2 carries an integral hanging tab 4 formed with a slot 5 which enables the tab to co-operate with standard wire hanging arms so as to exhibit a filled container assembly 1 on a display stand and has a marginal portion 8 of inverted channel-section to define an annular land 9. The tab 4 is planar and lies in a plane which is closely adjacent to that which contains the land 9 and the lid 3 is formed with a trapezoidal cut-out 20 to accommodate the hanging tab 4 when the lid 3 is engaged with the container body shell 2.

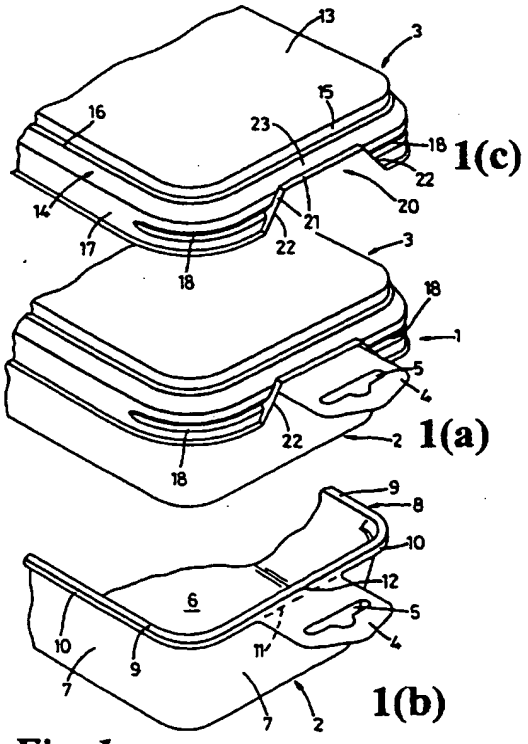

Fig. 1

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CONTAINERS WITH LIDS

This invention relates to containers with lids and particularly to such containers which comprise a hanging tab to enable the container to be hung on a suitable support.

The invention relates in particular to containers which comprise first and second shells, the margins of which are adapted to engage with one another in the closed condition of the container, one of the shells acting as a lid. Usually the lid will be of less depth than the other shell. The lid often has a snap-engagement with the other shell.

It is known to provide a hanging tab on a container which comprises a shell closed by a foil lid, the foil sheet sometimes being sealed to a flat land provided around the margin of the shell. A European standard exists for the dimensions of the aperture in the tab to enable the tab to be hung upon standardised support means.

A problem has arisen in providing a hanging tab on a container comprising two cooperating thermo-formed shells. The hanging load exerted by the tab on the shell to which the tab is attached has sometimes caused the shells to separate from one another whilst the container is supported on a display stand.

According to one aspect of the invention a container comprises first and second shells which are adapted to be secured together with marginal portions of the respective shells cooperating with one another, the first shell having a hanging tab integral therewith, the marginal portion of the first shell comprising a first annular land which lies substantially in a plane extending across the mouth of the shell, at least in a length of said land that is adjacent to a hanging tab, the integral connection between the hanging tab and the marginal portion of the first shell being at a position that is

at or closely adjacent to the first annular land, the marginal portion of the second shell comprising a second annular land which is adapted to bear against the first annular land (but there may be an intervening layer of material therebetween), and a skirt which extends in a direction away from the top of the second shell, the skirt being formed with an aperture through which the tab extends in the closed condition of the shells.

The term "annular" is used herein to cover lands which are other than circular, for example rectangular lands provided on rectangular shells.

The provision of the aperture in the skirt of the second shell enables the integral connection between the hanging tab and the first shell to be at or closely adjacent to the first annular land, since otherwise the tab would need to be positioned on the first shell so as to clear the skirt. We have appreciated that it is desirable for the integral connection to be closely positioned in relation to the first annular land, so as to minimise the distortion of the marginal portions caused by the hanging load exerted on the hanging tab.

The aperture in the skirt is preferably in the form of a cut-out in the skirt, which cut-out extends for substantially the full height of the skirt but not completely, thereby leaving a residual skirt portion adjacent to the first annular land, which residual skirt portion helps to retain some rigidity to the marginal portion of the second shell in the region of the cut-out.

Preferably, the cut-out is bounded by a border flange which extends in planes generally normal to the plane of the residual skirt, so as to define an L-section border around the cut-out.

The cut-out preferably has tapered ends, and said L-section border extends along the tapered ends, whereby the border flange defines a bridge extending over the tab in the closed condition of the shells, so providing strength to the marginal portion of the second shell in the absence of the full depth of skirt.

The marginal portion of the first shell preferably comprises a first shell peripheral flange, that depends from the first annular land and is directed towards the base of the first shell, the arrangement being such that first shell peripheral flange is overlapped by the skirt on the second shell.

The hanging tab is preferably integrally connected to the rim of the first shell peripheral flange, the first shell peripheral flange providing rigidity to the first shell in the region of the integral connection so as to assist in resisting deformation of the first shell under hanging loads.

The shells are preferably thermo-formed plastics but could be injection moulded plastics, metal foil, or cardboard.

A second aspect of the invention relates to a container lid suitable for fitting a container provided with a hanging tab.

According to the second aspect of the invention a container lid comprises a top surrounded by an annular land adapted to seat on a complementary formation provided on a container, a skirt positioned outwardly of the annular land and directed away from the top, the skirt being formed with an aperture to accommodate a hanging tab provided on the container.

Some containers with lids in accordance with the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:-

Figure 1(a) is a perspective view of one end of a thermo-fomred container shell and assembled thermo-formed lid showing the hanging tab;

Figure 1(b) is a perspective view of the corresponding end of the open container shell of the assembly of Figure 1(a);

Figure 1(c) is a perspective view of the corresponding end of the container lid of Figure 1(a);

Figure 2 is a plan view of the container shell of the assembly of Figure 1;

Figure 3 is a side elevation of the container shell of Figures 1 and 2;

Figure 4 is an under-plan view of the lid of the assembly of Figure 1;

Figure 5 is a side elevation of the lid of Figure 4;

Figure 6 is a side elevation of the container shell of Figure 1 to show a typical hanging orientation;

Figure 7 is a partial view in plan of a modified container shell in accordance with the invention; and

Figure 8 is a side elevation of the container shell of Figure 7.

With reference to Figures 1 to 5, a container assembly 1 comprises a thermo-formed transparent plastics first or container shell 2 and a thermo-formed transparent second shell in the form of a lid 3. Container shell 1 is stackable with identical container shells, and lid 3 is similarly stackable for transit.

Container shell 2 carries an integral hanging tab 4 formed with a slot 5 to a European specification which enables the tab to cooperate with various standard wire hanging arms for displaying the filled container assembly on a display stand.

The container shell 2 and lid 3 are of generally oblong-rectangular shape in plan with rounded corners. The container shell 2 comprises a container base 6, sloping side walls 7 and a marginal portion 8 around the rim of the container shell, the marginal portion 8 being of inverted channel-section to define an annular first land 9 which lies in a plane parallel to the base 6, the land 9 facing away from the base 6 of the shell 2. The down-turned wall of the said channel-section defines a shallow first shell peripheral flange 10 directed towards the base 6 but overhanging the sides 7.

As shown in Figures 1 and 3, the tab 4 is planar and lies in a plane which is closely adjacent to that plane which contains the first land 9, the tab 4 connecting integrally with the lower margin of peripheral flange 10 in a right-angled corner 11. Thus, the portion 12, Figure 1, of the first shell peripheral flange 10 substantially bears the hanging loads exerted in use on the tab 4, and since the depth of flange 10 is small, there is no substantial tendency to bend the marginal portion 8 of the shell 2 about the local axis of the marginal portion.

It will be appreciated that the presence of the portion 12 of the peripheral flange 10 helps to rigidify the marginal portion 8 in the region of the tab 4. It would, however, be possible in some cases for the tab 4 to be made in the same plane as the land 9 and contiguous therewith.

For some uses of the container shell 2 initial sealing of the shell 2 is required, and then a membrane, not shown, such as a peelable foil membrane, may be sealed to land 9 to provide an initially

sealed container, the lid 3 fitting in place over the membrane.

With reference to Figures 1(c), 4 and 5, the lid 3 comprises a flat top 13 and a downwardly directed second shell marginal portion 14 comprising a top-surrounding wall 15 extending substantially normal to the top 13, an annular second land 16 extending in a plane parallel to the top 13 and directed outwards from the lower edge of the wall 15, and a skirt 17 depending from the outer edge of the second land 16.

Second land 16 is of complementary shape in plan to that of the first land 9 for abutting therewith (apart from any intervening membrane) in the closed condition of the container, the skirt 17 then lying in face contact with the peripheral flange 10 of the container shell 2, but overlapping substantially therewith due to the much greater depth of skirt 17.

As shown best in Figure 5, the skirt 17 is formed with inwardly directed spaced-apart locking ribs 18 to provide a snap-connection between the lid 3 and container shell 2, the ribs 18 fitting beneath the peripheral flange 10 in the engaged position of the lid, this engagement drawing the lid down, in known manner, to hold the lands 9, 16 in firm abutment.

In accordance with the invention, the lid 3 is formed with a trapezoidal cut-out 20 in the skirt 17 at one end of the rectangular lid 3 to accommodate the hanging tab 4 when the lid 3 is engaged with the container shell 2, the cut-out being defined by a border flange 21 which forms a bridge with sloping ends 22 to extend over the tab 4. The cut-out 20 does not extend for the full height of skirt 17, but leaves a residual skirt portion 23, Figure 1(c), above the cut-out, thereby providing residual strength in the marginal portion 14, this being enhanced by the border flange 21.

It has been found that this configuration of cut-out lends substantial rigidity to the marginal portion 14 of the lid and enables the snap action of the ribs 18 at the adjacent corners to remain effective despite the presence of the cut-out 20.

Figure 6 shows a typical hanging orientation for a loaded container (the lid being omitted from the drawing). In order to assist in ensuring that the loaded containers all hang in a similar orientation irrespective of the cooperation between the tab 4 and the arm support, the tab 4 may be provided, as in Figures 7 and 8, with a hinge in the form of a channel section formation 24.

Also, as shown in Figure 8, the end 25 of the container shell 2 may be suitably shaped to alter the position of the centre of gravity of the load within the container, to cause the hung container to adopt a more vertical orientation than would otherwise be the case.

A tab 26 may be provided on one corner of the lid as shown in Figure 7 to assist removal of the lid.

Although the illustrated containers are of oblong-rectangular shape in plan view, it should be appreciated that the invention can be applied to containers and lids of other shapes. For example, the invention is applicable to containers of circular plan shape.

With a circular container the cut-out 20 may be defined in a circumferential length of the marginal portion of the lid, so that when a bridge 21, 22 is provided, this is curved in plan view. Alternatively, the cut-out 20 could be provided in a chordal length of the marginal portion of the lid, in which case if a bridge 21, 22 is provided, the bridge will extend as a chord to the otherwise circular shape of the lid.

CLAIMS

1. A container comprising first and second shells which are adapted to be secured together with marginal portions of the respective shells co-operating with one another, the first shell having a hanging tab integral therewith, the marginal portion of the first shell comprising a first annular land which lies substantially in a plane extending across the mouth of the shell, at least in a length of said land that is adjacent to a hanging tab, the integral connection between the hanging tab and the marginal portion of the first shell being at a position that is at or closely adjacent to the first annular land, the marginal portion of the second shell comprising a second annular land which is adapted to bear towards or against the first annular land, and a skirt which extends in a direction away from the top of the second shell, the skirt being formed with an aperture through which the tab extends in the closed condition of the shells.

2. A container as claimed in claim 1, wherein there is an intervening layer of material between the second and first annular lands.

3. A container as claimed in claim 2, wherein the layer of material comprises a foil member.

4. A container as claimed in claim 2, wherein the layer of material comprises a peelable foil membrane.

5. A container as claimed in any one of claims 1 to 4, wherein the hanging tab is planar and lies in a plane which is closely adjacent to that plane which contains the first annular land.

6. A container as claimed in claim 5, wherein a flange extends around the outer periphery of the first annular land and the hanging tab is connected thereto.

7. A container as claimed in any one of claims 1 to 6, wherein the said aperture comprises a cut-out formed in the skirt, and which extends for a substantial portion of the full height of the skirt, leaving a residual skirt portion adjacent the first annular land, so as to retain some rigidity in the region of the cut-out.

8. A container as claimed in claim 7, wherein the cut-out is bounded by a border flange.

9. A container as claimed in claim 8, wherein the border flange extends in planes generally normal to the plane of the residual skirt, so as to define an L-section border around the cut-out.

10. A container as claimed in claim 7, 8 or 9, wherein the cut-out has tapered ends, and said L-section border extends along the tapered ends, whereby the border flange defines a bridge extending over the hanging tab in the closed condition of the shells, so providing strength to the marginal portion of the second shell in the absence of the full depth of skirt.

11. A container as claimed in claim 10, wherein the marginal portion of the first shell comprises a first shell peripheral flange, depending from the first annular land and directed towards the base of the first shell, the arrangement being such that in the closed condition of the shells, said first shell peripheral flange is overlapped by the skirt on the second shell.

12. A container as claimed in any one of claims 1 to 11, having means providing a snap-connection between the first and second shells.

13. A container as claimed in claim 12, wherein the means providing said snap-connection comprise ribs formed on one shell which fit beneath a flange portion on the other shell in the closed condition of the shell.

14. A container as claimed in any one of claims 1 to 13, wherein one of the shells carries a tab, use of which assists removal of said one shell from the other shell.

15. A container as claimed in any one of claims 1 to 14, wherein the shells are of thermo-formed plastics material.

16. A container as claimed in any one of claims 1 to 14, wherein the shells are of injection moulded plastics material.

17. A container as claimed in any one of claims 1 to 14, wherein the shells are of metal foil material.

18. A container as claimed in any one of claims 1 to 14, wherein the shells are of cardboard material.

19. A container lid for use with a container body provided with a hanging tab, wherein the container lid comprises a top surrounded by an annular land adapted to seat on a complementary formation provided on the container body, and a skirt positioned outwardly of the annular land and directed away from the top, the skirt being formed with an aperture to accommodate a hanging tab provided on the container.

20. A container lid as claimed in claim 19, wherein the hanging tab is planar and lies in a plane which is closely adjacent to that plane which contains said annular land.

21. A container lid as claimed in claim 19 or 20, wherein the said aperture comprises a cut-out formed in the skirt, and which extends for a substantial portion of the full height of the skirt, leaving a residual skirt portion adjacent the first annular land, so as to retain some rigidity in the region of the cut-out.

22. A container lid as claimed in claim 21, wherein the cut-out is bounded by a border flange.

23. A container lid as claimed in claim 22, wherein the border flange extends in planes generally normal to the plane of the residual skirt, so as to define an L-section border around the cut-out.

24. A container lid as claimed in claim 21, 22 or 23, wherein the cut-out has tapered ends, and said L-section border extends along the tapered ends, whereby the border flange defines a bridge extending over the hanging tab in the closed condition of the shells, so providing strength to the marginal portion of the second shell in the absence of the full depth of skirt.

25. A container lid as claimed in any one of claims 19 to 24, made of thermo-formed plastics material.

26. A container lid as claimed in any one of claims 19 to 24, made of injection moulded plastics material.

27. A container lid as claimed in any one of claims 19 to 24, made of metal foil material.

28. A container as claimed in any one of claims 19 to 24, made of cardboard material.

29. A container, substantially as hereinbefore described with reference to Figures 1(a), 1(b), 1(c) and 2 to 6 of the accompanying drawings.

30. A container substantially as hereinbefore described with reference to Figures 1(a), 1(b), 1(c) and 2 to 6 of the accompanying drawings modified substantially as hereinbefore described with reference to Figures 7 and 8 of said drawings.

31. A container lid, substantially as hereinbefore described with reference to Figures 1(a), 1(b), 1(c), 4 and 5 of the accompanying drawings.

32. A container as claimed in any one of claims 1 to 18, 29 and 30, formed so as to be stackable with body shells of identical containers.

33. A container lid as claimed in any one of claims 19 to 28 and 31, formed so as to be stackable with identical container lids.

The Patent Office

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Application No: GB 9512595.1 **Examiner:** Mike Henderson
Claims searched: 1 to 33 **Date of search:** 10 July 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): B8P (PL1 PL5 PM PK5 PK10) B8C (CWS3)

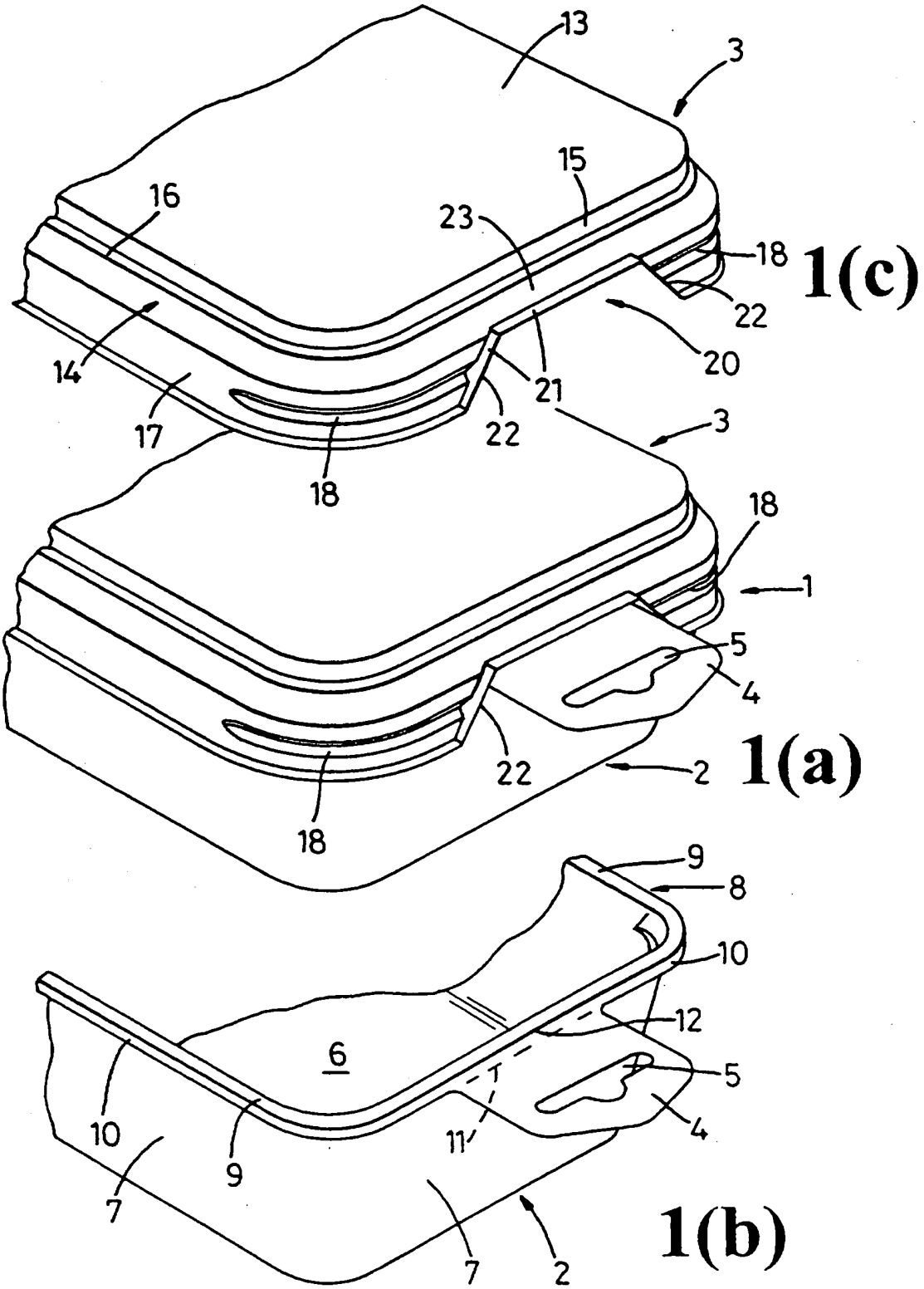
Int Cl (Ed.6): B65D 25/22 43/02 43/08 43/10 73/00 75/32 75/56

Other: ONLINE:WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	US 4349102 (STRONGWATER) (Whole specification relevant)	1 to 33

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.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1(c)

1(a)

1(b)

Fig. 1

Fig. 2

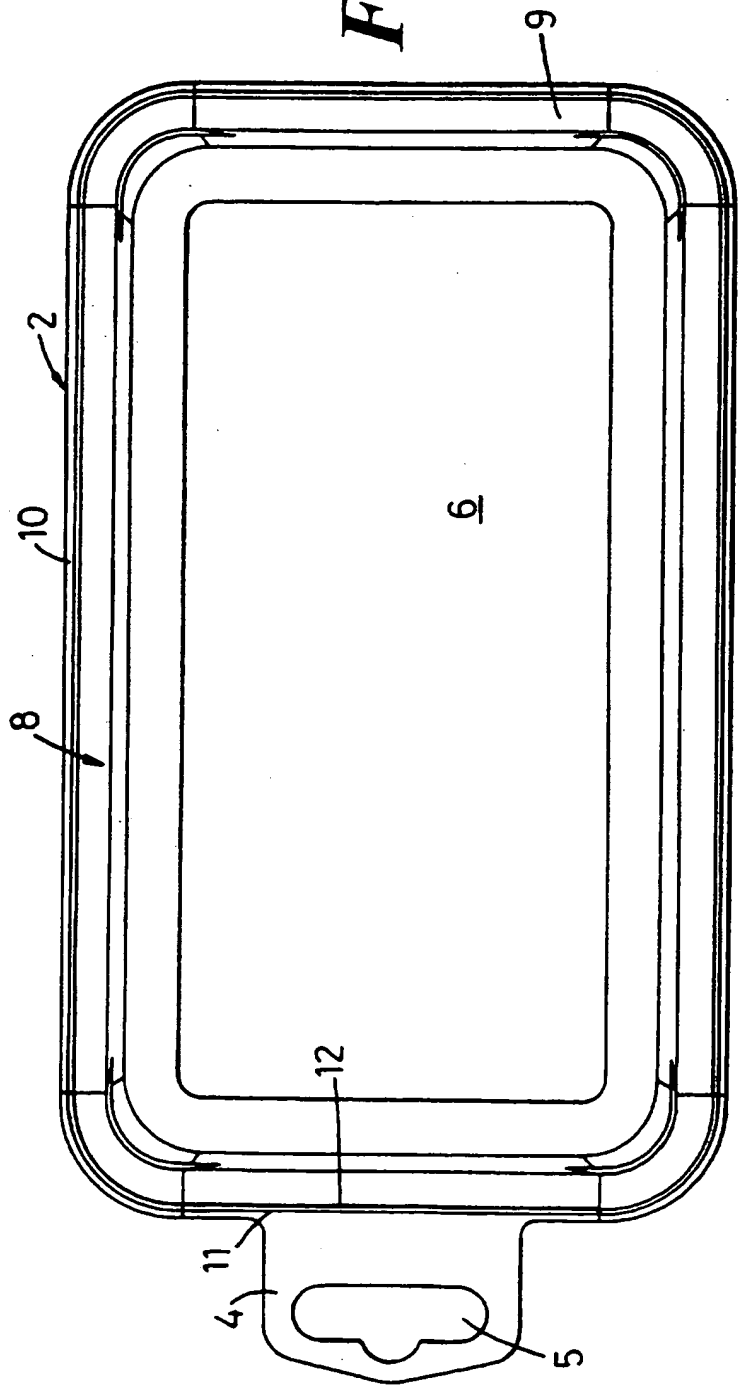
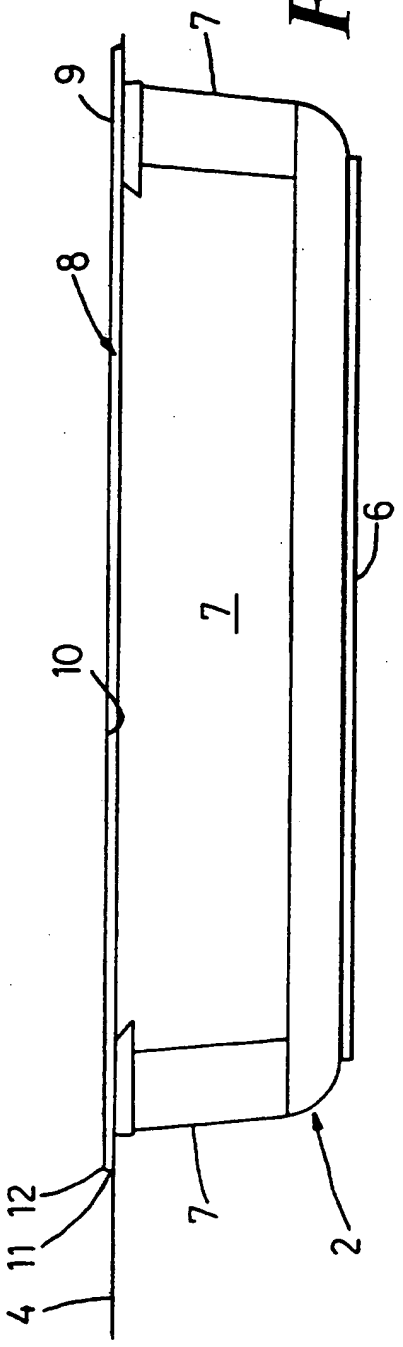


Fig. 3



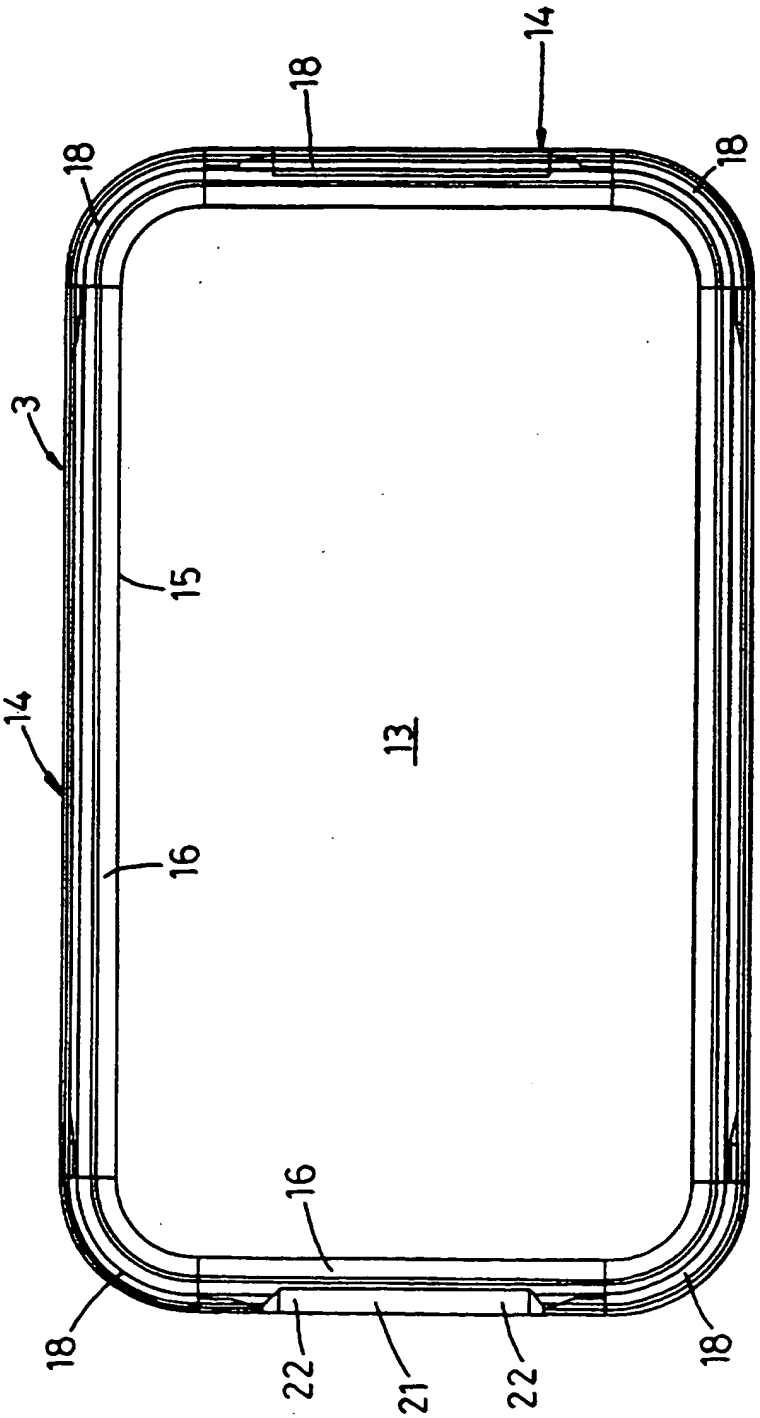


Fig. 4

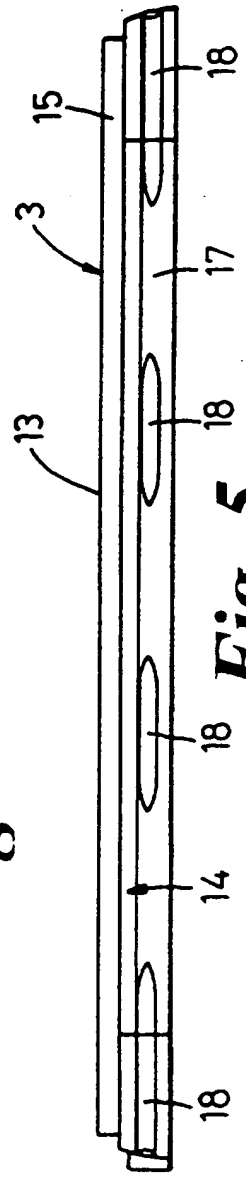


Fig. 5

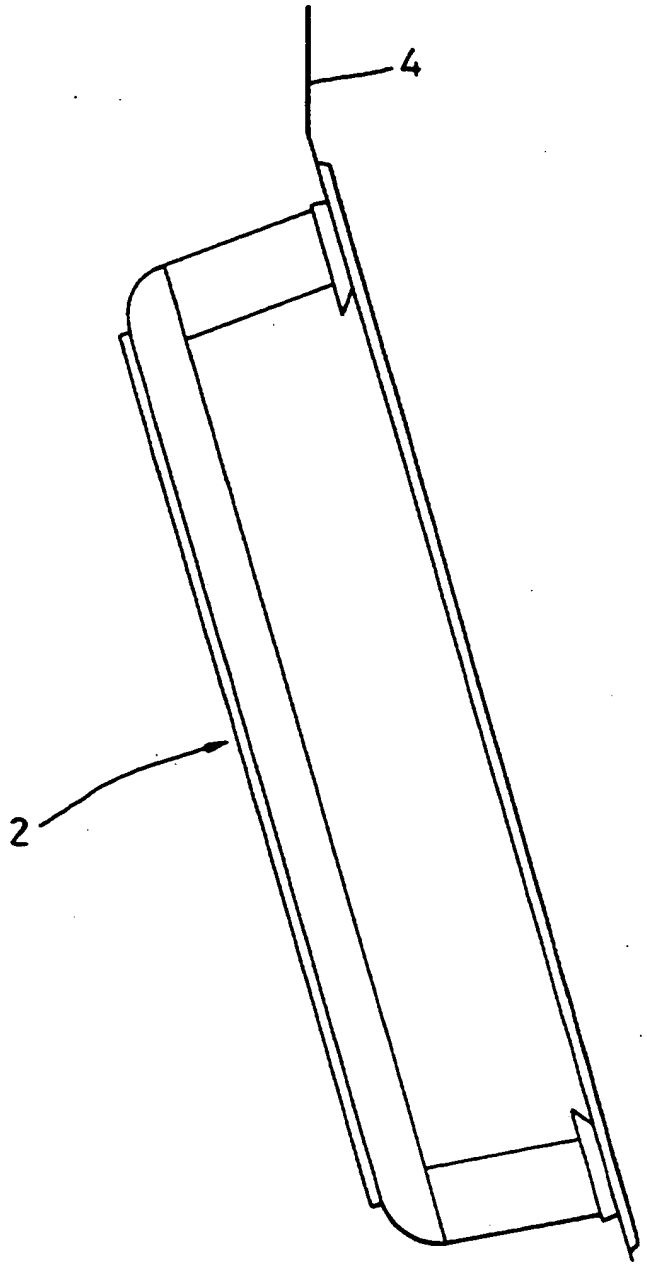


Fig. 6

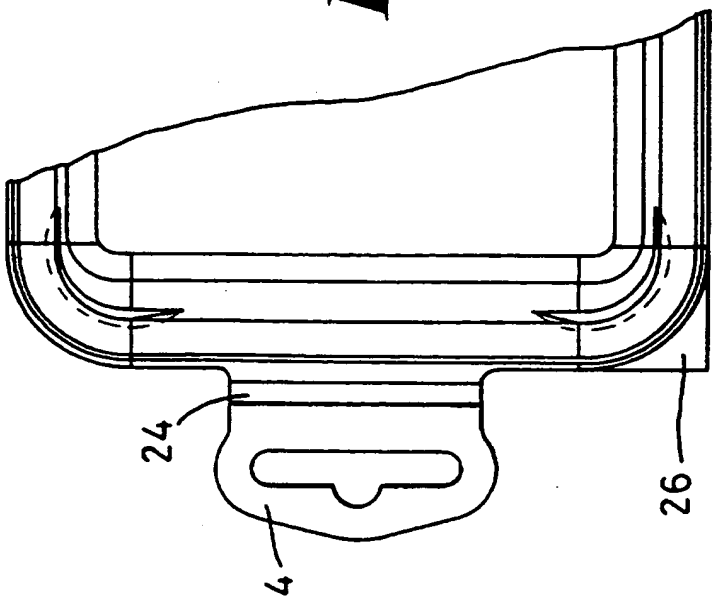


Fig. 7

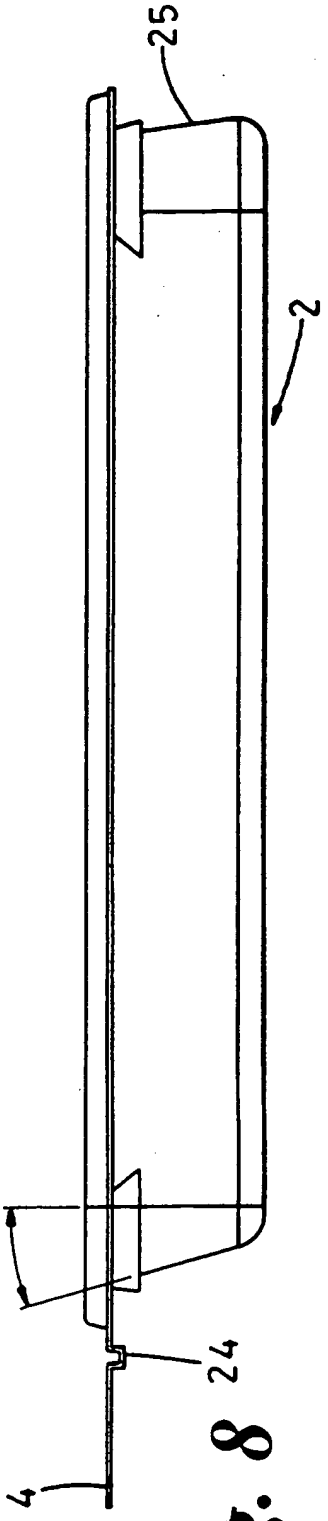


Fig. 8